COLORADO RIVER RECOVERY PROGRAM Project No.: 85C
FY-2004–2005 PROPOSED SCOPE OF WORK for:
Colorado River Basin Channel Monitoring

Lead Agency: U.S. Fish and Wildlife Service
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Date: April 16, 2001 (revised October 31, 2003)

Category:
__ Ongoing project
x Ongoing-revised project
__ Requested new project
__ Unsolicited proposal

Expected Funding Sources:
x Annual funds
__ Capital funds
__ Other (explain)

I. Title of Proposal:

Upper Colorado River Basin Channel Monitoring

II. Relation to RIPRAP:

Colorado River Action Plan: Mainstem

I.A.3.c(3)(c)ii) Implement, evaluate process & hydrology, and provide annual report (on Coordinated Reservoir Operations, from 1999 RIPRAP)

I.A. Evaluate methods for defining habitat-flow needs and select methods most appropriate to specific stream reaches (from 2003 RIPRAP)

III. Study Background/Rational:

During the past eight years, a cooperative channel monitoring effort has proven successful in providing insights into habitat-dependent processes and issues. This approach resulted in a considerable amount of information being collected and analyzed at a relatively low cost to the Recovery Program. The approach has taken advantage of previous efforts and has capitalized on cooperative efforts, available data, and expertise within the Recovery Program to provide information used to develop flow recommendations and design habitat improvement projects. This monitoring effort concentrated on the relationship between river flows and sediment buildup in riffles and runs of the Colorado River near Grand Junction. However, priorities for future geomorphology research changed as a result of recommendations in the report entitled *Recommended Priorities for Geomorphology Research in Endangered Fish Habitats of the Upper Colorado River Basin* (LaGory et al.

2003) and adopted by the Biology Committee. Spawning, floodplain, and backwater habitats are all identified in the report as high-priority research topics. Initially, the Biology Committee agreed to fund studies of backwater connectedness in certain reaches of the Green and Colorado rivers for their importance as nursery habitats for endangered fishes. Spawning habitats will be studied in future years. Although embeddedness is still considered an important issue in certain reaches as it relates to spawning habitat, this study did not focus specifically on spawning habitats. Therefore, field collections for this portion of the study were terminated, and this scope of work provides for a final report detailing information collected to date.

IV. Study Goals:

The goal of the channel monitoring program is to support the efforts of the Recovery Program in identifying historical trends, developing flow recommendations, restoring flooded bottom lands, and monitoring physical conditions of the rivers in the Upper Colorado River Basin.

V. Study Area:

The Colorado River in the 15- and 18-mile reaches of the Grand Valley in Colorado.

VI. Study Method/Approach:

In the Grand Valley, baseline data for cobble embeddedness was acquired during 1996–1997 (Osmundson and Scheer 1998) and was continued in 1998. In 1999, a formal 10-year embeddedness monitoring program began as part of the channel-monitoring program. So far, embeddedness has been monitored from 1999 through 2002. Starting in 2001, invertebrate monitoring at the embeddedness study sites was added to the monitoring protocol. This was designed to test whether there is a biological response to annual fluctuations in depth-to-embeddedness levels. This work was planned to continue through 2008 to provide a sufficient number of years of both substrate and companion invertebrate sampling to allow correlative statistical analyses. Invertebrate biomass has been monitored in 2001 and 2002. The embeddedness monitoring program consisted of taking 20 measurements of depth-to-embeddedness at each of 16 sites in the Grand Valley on four sampling dates each year: once prior to runoff and three times during the base-flow period of summer. In addition, three invertebrate samples were collected with a modified Hess sampler at each site on the four dates. Invertebrate samples were analyzed in the lab for total dry weight biomass.

VII. Task Description and Schedule:

Task 1. Prepare draft and final 4-year summary report.

Schedule (Task 1): 2004

VIII. FY-2004 Work (year 5 of multi-year study):

– Deliverables/Due Dates:
Prepare draft report (03/30/2004)
Prepare final report (06/30/2004)

– Budget

Task 1: Data analysis and report writing.

- Labor (salary and benefits)		
Fishery Biologist (1,620/wk)	8 wks	$12,960
Project Leader (1,880/wk)	1 wk	1,880
Admin assistant (1,225/wk)	1 wk	1,225
Bio-statistician		1,000
- Sub Total		$17,065
- Office supplies (paper, computers, telephones, etc)		500
- Total		$17,565

IX. Budget Summary:

FY-2004: Task 1: $17,565

Total: $17,565

X. Reviewers:

Gerry Roehm
George Smith